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30 OCT 1969 **MSD 2011**

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EXEMPTED FROM 25 MAR 1996
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REVIEW DATE________ REVIEWER 61
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Director
Maxwell
K243.8636-37
pt. 9
1 Nov 1956

WS 117L ADVANCED RECONNAISSANCE SYSTEM

DEVELOPMENT PLAN

VOLUME II SUBSYSTEM PLANS

J. Ground Support and Training

DOWNGRADED AT 12 YEAR
INTERVALS; NOT AUTOMATICALLY
DECLASSIFIED. DOD DIR 5200.10

LOCKHEED AIRCRAFT CORPORATION
MISSILE SYSTEMS DIVISION
PALO ALTO, CALIFORNIA

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ATTN: Arch[illegible] Branch
Maxwell AFB, Alabama

K243.8636-37
pt. 9
1 Nov 1956

REVIEW ON 31 Dec 2006

WS 117L ADVANCED RECONNAISSANCE SYSTEM

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PALO ALTO, CALIFORNIA

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FOREWORD TO VOLUME II

The Advanced Reconnaissance System (Weapon System 117L) consists of a satellite vehicle which can perform visual, electronic, and infrared reconnaissance, together with the necessary system of ground stations, data processing centers, and training facilities.

In accordance with the instructions of CCN No. 1 to Contract AF 33(616)-3105, the Missile Systems Division, Lockheed Aircraft Corporation, has revised its Subsystem Development Plan (MSD 1536, Volume II) to be consonant with the WDD Development Plan, dated 2 April 1956, as modified and published in Volume I of this report.

It should be noted the outline of subsystems as given in MSD 1536 has been changed to agree with the WDD Plan. Subsystems H and J of MSD 1536 have been combined to give a new Subsystem H - Ground-Space Communications.

In accordance with oral instructions from WDD, the Flight Test Subsystem I of MSD 1536 has not been documented at this time. The information pertaining to flight testing is presented in the other subsystem volumes as appropriate. The titles of old Subsystems K and L (now I and J, respectively) have been changed.

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OUTLINE

OF

WS 117L DEVELOPMENT PLAN

Volume I	SYSTEM PLAN
	Supplement (Top Secret)
Volume II	SUBSYSTEM PLANS
A	Vehicle
B	Propulsion
C	Auxiliary Power
D	Guidance and Control
E	Visual Reconnaissance
F	Electronic Reconnaissance
G	Infrared Reconnaissance
H	Ground-Space Communications
I	Data Processing and Intelligence Dissemination
J	Ground Support and Training

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- Hardware Delivery
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- R and D Schedules

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MISSILE SYSTEMS DIVISION

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MSD-2011

RDB PROJECT CARD

TYPE OF REPORT

REPORTS CONTROL SYMBOL DD-RDB(A)48

1. PROJECT TITLE
GROUND SUPPORT AND TRAINING SUBSYSTEM FOR ADVANCED RECONNAISSANCE SYSTEM (Uncl) WEAPON SYSTEM 117L

2. SECURITY S

3. PROJECT NUMBER WS 117L

4. INDEX NUMBER

5. REPORT DATE 1 November 1956

6. BASIC FIELD OR SUBJECT Strategic Air Warfare

7. SUBFIELD OR SUBJECT SUBGROUP

7A. TECH. OBJ.

8. COGNIZANT AGENCY Air Research and Development Command

9. DIRECTING AGENCY Hq ARDC Western Development Division

OFFICE SYMBOL

TELEPHONE NO.

10. REQUESTING AGENCY Hq. USAF

11. PARTICIPATION, COORDINATION, INTEREST

12. CONTRACTOR AND/OR LABORATORY Lockheed Aircraft Corp. Missile Systems Division

CONTRACT/W.O. NO.

13. RELATED PROJECTS

14. DATE APPROVED

15. PRIORITY 1A

16.

17. EST. COMPL. DATES

RES.	
DEV.	
TEST	
OP. EVAL.	

18. FY	FISCAL ESTS. (M $)

19.

20. REQUIREMENT AND/OR JUSTIFICATION

a. The ground support and training subsystem provides facilities for vehicle launching, logistical methods and procedures, system and component testing, and component evaluation testing. This subsystem identifies specialized ground handling, check out, test equipment, and processing necessary to prepare the ARS vehicle for flight evaluation, and provides by training programs qualified personnel for all phases of ARS operations.

b. Specific applications and procedures which will be established in the ground support area during the research and development program will serve as a guide to establish methods which will be employed when the ARS becomes operational. The results expected from this work can be obtained in no other manner; however, other programs currently in process will furnish many important inputs.

c. This work will increase the capability of the program participants to indoctrinate personnel and supply functional data useful in modifying ground support handling techniques, logistics programs and equipment

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1. PROJECT TITLE GROUND SUPPORT AND TRAINING SUBSYSTEM FOR ADVANCED RECONNAISSANCE SYSTEM (Uncl)	2. SECURITY OF PROJECT ~~S~~	3. PROJECT NUMBER WS 117L
	4.	5. REPORT DATE 1 November 1956

checkout procedures. Programs will also be initiated to correct any deficiencies in reliability, human factors and personnel safety.

21 a. Summary of Operational Scheme

The ultimate attainment of a facility, with supporting equipment, which insures an acceptable logistics plan and provides methodical assembly, pre-launch checkout, handling and erecting the ARS booster-vehicle combination on the firing pad is the primary objective of this subsystem.

Prior to the acceptance of a final scheme, many preliminary steps must be analyzed and either accepted, modified, or discarded. The step-by-step analysis commences with the first fabrication of a flight hardware article and continues through flight test to data processing and assimilation. First fabrication of flight hardware assumes that component testing and evaluation have been accomplished in order to select and modify components and to ensure their reliability. For the most part component testing and evaluation will occur at "in-plant" test facilities. These test facilities are various laboratories devoted to testing such elements as telemetry, transducers, gyros, controls, computers, and other electronic and electromechanical components.

Fabrication and assembly facilities present no unusual requirements that need be detailed here, since vehicles will be transported fully assembled to the various sites.

A Captive System Test Facility will be required for complete ARS vehicle systems tests under hot run conditions. This facility will also provide for separate sustainer and control engine tests along with auxiliary power units and other hazardous components testing which cannot be performed at the in plant site.

For the initial flight test programs, a complete test base will be required at AFMTC, Patrick AFB, Florida. Tests that will be conducted at this facility include the initial non-orbiting and early orbit programs.

The requirements for launching of more advanced non-orbiting, orbit tests, and operational test vehicles, dictate the need for an alternate launching site, separate from AFMTC. Consideration has been given to the West Coast and the Pacific area (Hawaiian Islands). Since the WS-107 program will employ a West Coast IOC Site, it has been determined that this location would also be suitable for the more advanced stages of the ARS program.

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21 b. Approach

Indoctrination of personnel assigned to duty at the facilities will be the first step toward satisfying the ground support requirements. This will be accomplished by integrating these personnel in the design fabrication and liaison groups in their particular fields to acquaint them with fundamental problems likely to occur in the field. They will be phased into the proper facilities as their services are needed.

21 c. Subsystem Tasks

1. a. In-Plant Facilities

b. Contractor: Lockheed Aircraft Corporation, Missile Systems Division.

c. Research, development, and engineering tests for design and evaluation will be the responsibilities of the various departments assigned subsystem and system tasks. Existing test equipment will be expanded and supplemented by the addition of considerable specialized equipment.

The normal facility expansion will include electronic, telemetry, gyro simulators, propulsion components, structures, materials, environmental and control test equipment. The requirements for specialized facilities include gyro environment tables, rapid altitude chambers, electronic system checkout consoles, hazardous fuel chemistry and material testing, and, to the extent possible, a complete orbit environment test chamber. The basic philosophy of all inplant facilities is to provide services to duplicate inflight conditions on the ground.

2. a. Captive System Test Facility

b. Contractor: Lockheed Aircraft Corporation, Missile Systems Division; Ralph M. Parsons Co., Holmes & Narver, Sverdrup & Parcel.

c. The facility for supporting tests of the propulsion system, vehicle system, and hazardous components is to be isolated from the general manufacturing and office areas in the interest of safety. It will probably be located within reasonable proximity of the San Francisco Bay Area. This facility is to be divided into three sections, (1) vehicle

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and propulsion, (2) components and hazard, and (3) a central instrumentation data acceptance office.

Basic vehicle system, propulsion system and full enviromental (altitude, etc.) testing will be centered around a single control building. Provision for control booths, offices, shops and local fuel support control will be in this building. Four pads are planned in this area to be operated as desired.

The component and hazard area is to be devoted to testing materials, auxiliary power units in suitable altitude chambers, components, pneumatic devices under radiation and similar conditions. The general arrangement again is to be based upon a single control building housing control booths, cells, shop and office area. The fuel support for the two areas will be designed to contain any fire and to suppress all toxic vapors and waste by filtration.

The central instrumentation and data facility will handle all information from the various areas. Multiple quick-look, control data recorders, "go no-go" inspection control and tape recorders will be provided. The existing computers will be utilized for reduction and analysis.

3. a. AFMTC

b. Contractor: Lockheed Aircraft Corporation, Missile Systems Division, and Government Furnished Equipment.

c. The initial flight program of the early vehicles will be activated at AFMTC, Florida. Facilities required for this program are independent of existing X-17 Facilities. One-half of a Missile Assembly Building, approximately 17,000 sq. ft., is required for assembly and checkout of all vehicles.

Launching Support for this program will be on a joint use basis with the WS-107A program. Specifically, common use of pads, blockhouse and modified firing console is intended, assisted by WS-107 Convair crews to accomplish mating with the booster and final checkout.

4. a. Alternate Launch Site - West Coast IOC

b. Contractor: Lockheed Aircraft Corporation, Missile Systems Division, and Government Furnished Equipment.

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CONTINUATION SHEET

SECURITY CLASSIFICATION

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NUMBER
GROUND SUPPORT AND TRAINING SUBSYSTEM FOR ADVANCED RECONNAISSANCE SYSTEM (Uncl)	~~S~~	WS 117L
	4.	5. REPORT DATE 1 November 1956

c. Basically, the alternate site will be another Cape Canaveral with the supporting features of Patrick Air Force Base incorporated. The major difference will be the emphasis on data acquisition and reduction as opposed to in-flight tracking.

To support the sixty personnel required in the test operations, it is estimated that an additional 300 people will be required for program support at the Alternate Site. As the program reaches operational use, the site should include two launching pads, a blockhouse, data and telemetering building, assembly building, control equipment, electronic equipment, fuel and oxygen storage, generator plant, complete internal communication, outside communication, range safety, housing, ground equipment, air conditioning of critical areas, transportation and special electronic, radar and nuclear equipment. The West Coast IOC Site at Camp Cooke appears acceptable although details are still being resolved.

5. a. Vehicle Intercept, Control and Data Stations

b. Contractor: Lockheed Aircraft Corporation, Missile Systems Division and Government Furnished Equipment.

c. Initial plans and considerations have been formulated on the premise that facilities will be required at three different locations for intercept, control and data acquisition for the ARS. Locations that provide maximum intercept capabilities of the vehicle are of primary consideration. As a result of studies conducted in this regard and described in detail in the second Pied Piper Quarterly Progress Report, locations have been tentatively selected for installation in the Northeastern USA, Northwestern USA, South Central USA, and in the Hawaiian Islands. The requirements for equipment and instrumentation for these stations are discussed under Subsystems H and I.

6. a. Advanced Reconnaissance System Intelligence Center

b. Contractor: Lockheed Aircraft Corp., Missile Systems Division
Eastman Kodak Company
GFF
and additional Subsystem I subcontractors

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1. PROJECT TITLE GROUND SUPPORT AND TRAINING SUBSYSTEM FOR ADVANCED RECONNAISSANCE SYSTEM (Uncl)	2. SECURITY OF PROJECT ~~S~~	3. PROJECT NUMBER WS 117L
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c. Tentative requirements for a central data assimilation center are presented in the volume describing Subsystem I, Ground Data Processing. In general, it is expected that the facilities will be operated by contractor personnel in order to provide a stable organizational structure. Location of the facility has not been suggested pending operational analysis to determine the best sites; however, it should be where transportation for both military and contractor personnel is readily available. This includes an airstrip for all types of military aircraft. Central U.S. locations are being considered.

Equipment and instrumentation required for the Intelligence Center will, for the most part, be fabricated by the Lockheed Aircraft Corporation, Missile Systems Division, the Eastman Kodak Company and IBM. Development and training of ARSIC operational personnel will be accomplished under this project.

This task encompasses the obvious aspects of real estate acquisition as well as design, construction, and installation of building facilities. Shops for general maintenance and repair will be included. Additional instrument shops and electronic laboratories will provide for the installation and maintenance of the components of the center.

7. a. Training

b. Contractor: Lockheed Aircraft Corporation, Missile Systems Division

c. This task involves the orientation and schooling required to establish operational and personnel capability potential.

8. a. Personnel Protection and Material Safety

b. Contractor: Lockheed Aircraft Corporation, Missile Systems Division

c. Consideration has been given to personnel protection and material safety in planning all facilities, handling and test equipment. Protection of operational personnel by use of protective clothing and sprays, and provision of escape areas is a standard practice used in the propulsion and chemical industries. Protection of "nearby" personnel and work areas will be by filtration (modification of vapors to

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1. PROJECT TITLE GROUND SUPPORT AND TRAINING SUBSYSTEM FOR ADVANCED RECONNAISSANCE SYSTEM (Uncl)	2. SECURITY OF PROJECT ~~S~~	3. PROJECT NUMBER WS 117L
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secondary products) of vapors and deep sea disposal of waste liquids and solids.

Other buildup and operational personnel will be shielded against blast, noise and vibration by the latest design techniques developed by the propulsion industry. Ground vibrations are of low magnitude and are not considered a serious problem.

21 d. Other Information

Detailed requirements of base support and equipment requirements are presented in the appendix to this subsystem.* Many of the support services required for the vehicle ground support program currently exist at AFMTC. Those not currently in use are contained in the AFMTC development plan for support of the ICBM program. These support services will be employed to the fullest extent in the ARS program and only specific items not currently planned for at AFMTC will be delineated in the support requirements detailed in the following tabs.

21 e. Background History

The requirements that have originated specifically for ARS ground support can be traced in part to the effort of LMSD in establishing the X-17 (RTV) as a forerunner of the WS107A (ICBM) at AFMTC. Many deficiencies in the operation of the range have been uncovered and in the interest of expediting the development of a satellite vehicle continued surveillance of the base operations must be critically examined to furnish procedures and data required to establish an alternate launch facility.

21 f. Future Plans

The ARS ground support subsystem will adequately comply with the requirements that have been dictated in an effort to permit the achievement of orbital capabilities with maximum reconnaissance utility. Since the booster for this system is used in the initial stages of the WS-107 A program the support plan will adhere as closely as possible to the WS 107 A system. Future plans will emphasize the compatible design and construction of handling equipment and other base and range support equipment so long as orbital and reconnaissance capability can be demonstrated.

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* See MSD 1536, Vol. II-L Appendix.

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1. PROJECT TITLE
GROUND SUPPORT AND TRAINING SUBSYSTEM FOR ADVANCED RECONNAISSANCE SYSTEM (Uncl)

2. SECURITY OF PROJECT
~~S~~

3. PROJECT NUMBER
WS 117L

4.

5. REPORT DATE
1 November 1956

21 g. **References**

1. Lockheed X-17 Facilities Requirement Report, MSD 1075
2. Ramo-Wooldridge - Collection of WS 107 A program technical data, submitted to Pied Piper Phase I Contractors January 3, 1956
3. Lockheed First Quarterly Progress Report, MSD 1363, Sections 5.3, 5.4, 5.5.
4. AFMTC Operations Directive, 11-55.

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TABS

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Subsystem J - GROUND SUPPORT AND TRAINING

Tab 1 - General Design Specification

I. GENERAL

A. Statement of the Problem

The purpose of this subsystem is to provide plans and designs for facilities, ground handling, test equipment, and general support of the Advanced Reconnaissance System.

B. Approach

Preliminary studies have been made to evaluate the total problems that will be encountered in establishing a suitable vehicle fabrication schedule to match testing and flight schedules. In addition, consideration has been given to component evaluation tests at in-plant laboratories before components are approved for subsystem use and subsequent subsystem prototype installation.

An evaluation has been made of the preliminary requirements for the Captive Systems Test Facility which will be primarily concerned with testing of liquid propellant engines, complete vehicle systems during hot firing runs, complete vehicle systems in radiation and other hazardous environments, and the simulation of the complete orbit environment.

The present X-17 facility at AFMTC has been critically examined in an effort to provide a well-organized scheme of operation for the support of the Advanced Reconnaissance System and to ensure that the operation will integrate easily and remain compatible with the WS 107A operation.

Consideration has been given to the problems that will be encountered in establishing an ultimate launching facility. For purposes of discussion this facility appears to have requirements for launching and tracking similar to the current facility at AFMTC, although the functional support will not be as elaborate.

The tentative requirements for the establishment of vehicle intercept and control stations, which will also serve as data acquisition stations, have been established.

In addition, a central intelligence center, which will serve as the focus for data interpretation, data analysis, and data display, is planned. This facility is discussed in Subsystem I.

C. Solution or Recommendations

Since the in-plant facilities of this support subsystem involve the design of many different units of test, check-out, handling and processing equipment, and since much of this equipment is standard laboratory or handling equipment used on other current programs, no effort has been made to present general design specifications of the units.

The principal ground handling units will be similar to those used on the X-17 (RTV) program which are discussed in Volume IV of the First Pied Piper Quarterly Progress Report (MSD 1363).

A re-evaluation of the vehicle logistic flow scheme has been made (see Fig. J-1).

AFMTC FACILITY. Consideration has been given to the handling of the vehicle during its assembly on the Atlas booster. Although little detail concerning the type of equipment which is to be supplied at the Atlas launching pads has been supplied by the Air Force, preliminary design of the vehicle places emplasis on using cranes and hoisting gear similar to that which will be used for handling and assembly of the Atlas warhead. The more advanced vehicles require additional clearance of the Atlas gantry equipment, and it appears that a modification to the equipment can be made as the subsequent pads are built. It also appears that the early vehicles will require a modification of the gantry equipment as well as modifications of electrical and electronic wiring and equipment.

A critical examination will be made of the Atlas ground handling and launcher design to provide a foundation for design optimization with the ARS vehicle. This design will be evolved at a later date for inclusion at the Alternate Launch Facility.

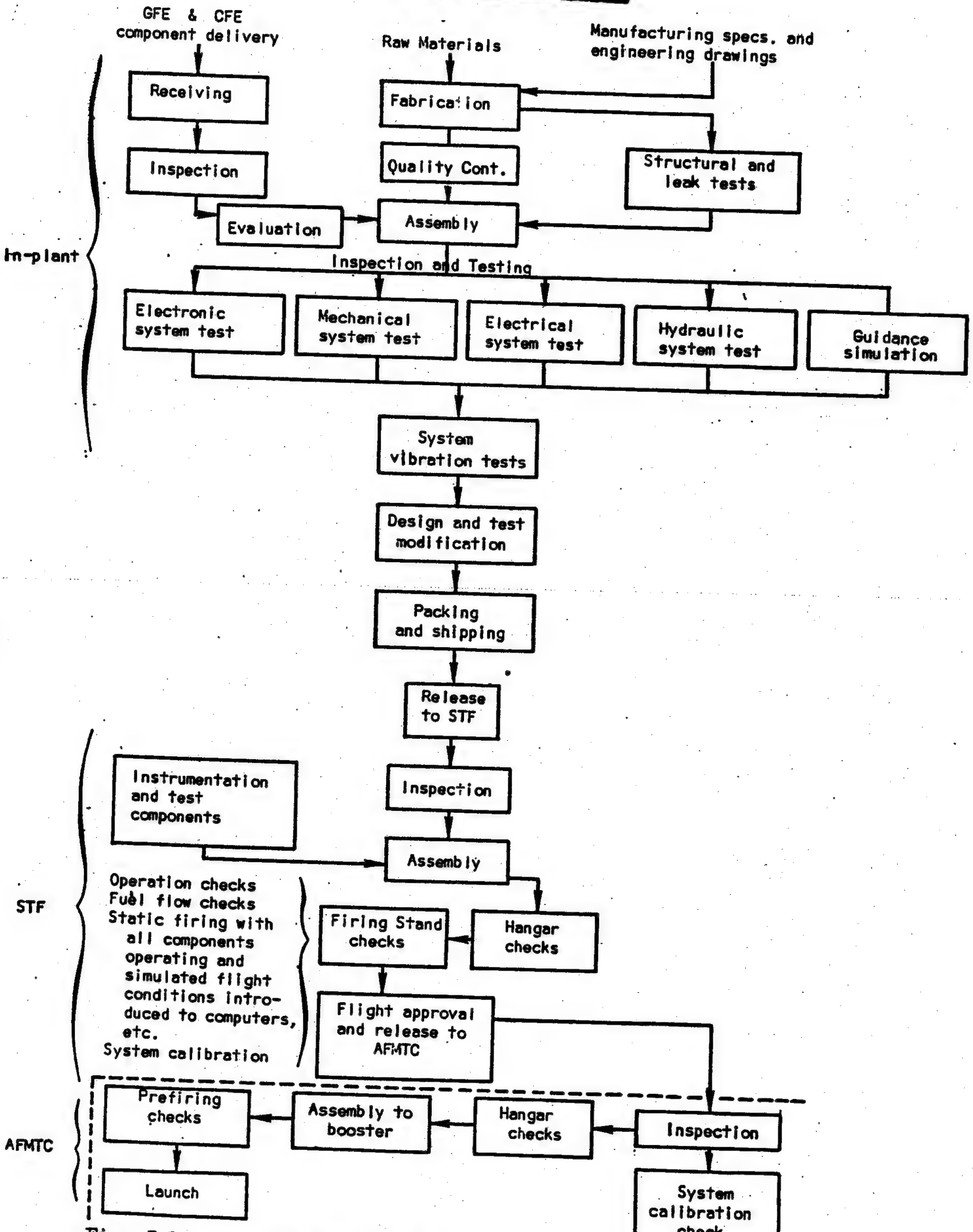

Fig. J-1 Vehicle Logistic Flow

Subsystem J

Tabs 2 and 3, Milestones and Schedules, are presented in the other volumes of this Development Plan.

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1. **R & D TEST AND TEST SUPPORT AIRCRAFT ANNEX**

☐ SYSTEM ☒ PROJECT ☐ TASK ☐ OTHER

2. REPORTS CONTROL SYMBOL

PAGE 1 OF 1 PAGES

3. DATE 1 November 1956

4. TITLE Subsystem J - GROUND SUPPORT AND TRAINING

5. INITIAL ☒ CHANGE

6. NUMBER WS 117L

SUMMARY OF AIRCRAFT SPECIFIED FOR SUBSYSTEM TESTING

7. ITEM NUMBER	8. AIRCRAFT REQUIRED QTY	TYPE, MODEL AND SERIES	SERIAL NUMBER	9. ASG CODE	10. MOD REQD	11. DATE REQD AND LOCATION	12. ESTIMATED RELEASE DATE	13. RECOMMENDED DISPOSITION	14. F HRS F CST	15. EST COST
1.	1	B 50			x	1 June '57 Sunnyvale, Calif.	Oct '60		2500	
** 2.	1	B 50			x	Aug '57	Jan '61		1500	

These aircraft will be used by Subsystems E, F, G and H.

** Item No. 2 will serve as back-up aircraft.

* The extent of modification required is not known now, but it will be indicated in the bailment agreement.

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J - Tab 4

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1.

R & D MATERIEL ANNEX

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2. REPORTS CONTROL SYMBOL

PAGE 1 OF 9 PAGES

3. DATE 1 November 1956

4. TITLE Subsystem J - GROUND SUPPORT AND TRAINING
Contractor equipment requirements for AFMTC -
Electrical and Electronic

5. INITIAL ☒
CHANGE

6. NUMBER WS 117L

7. MATERIEL REQUIREMENTS (Indicate Items in Columnar Form using Columns as cited in Examples)

Qty	Nomenclature	Cost	Year Req'd
1	Checkout Console	$75,000	1957
*1	Mobile Ground Instrumentation Station	25,000	1958
*	Ground Instrumentation Station Equipment	150,000	1958
		$250,000	

* Equipment required to supplement existing capital equipment

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1.

R & D MATERIEL ANNEX

☐ SYSTEM ☒ PROJECT ☐ TASK ☐ OTHER

2. REPORTS CONTROL SYMBOL

PAGE 2 OF 9 PAGES

3. DATE 1 November 1956

4. TITLE Subsystem J - GROUND SUPPORT AND TRAINING
Contractor ground handling and Vehicular requirements at AFMTC

5. INITIAL ☒
CHANGE

6. NUMBER WS 117L

7. MATERIEL REQUIREMENTS (Indicate Items in Columnar Form using Columns as cited in Examples)

Qty	Nomenclature	Cost	Year Req'd
	Ground Handling and Assembly Equipment	$200,000	1957-1958
1	Truck (1½ ton)	3,200	1957
4	Truck (½ ton) at 1,500	6,000	(2) 1957 (2) 1958
1	Forklift (4000 # cap)	5,700	1957
	TOTAL	$214,900	

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1.

R & D MATERIEL ANNEX

☐ SYSTEM ☒ PROJECT ☐ TASK ☐ OTHER

2. REPORTS CONTROL SYMBOL

PAGE 3 OF 9 PAGES

3. DATE 1 November 1956

4. TITLE Subsystem J - GROUND SUPPORT AND TRAINING
Contractor Special equipment requirements
at IOC

5. INITIAL ☒
CHANGE

6. NUMBER WS 117L

7. MATERIEL REQUIREMENTS (Indicate Items in Columnar Form using Columns as cited in Examples)

Nomenclature		Cost	Year Req'd
Safe handling equipment for installation and transport of hazardous closed chemical and nuclear APU Systems		$100,000	1958
	TOTAL	$100,000	

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PAGE 4 OF 9 PAGES

3. DATE 1 November 1956

4. TITLE Subsystem J - GROUND SUPPORT AND TRAINING
Contractor Special Equipment Requirements
at Alternate Launch Site (IOC)

5. INITIAL ☒
CHANGE

6. NUMBER WS 117L

7. MATERIEL REQUIREMENTS (Indicate Items in Columnar Form using Columns as cited in Examples)

Nomenclature		Cost	Year Req'd
Safe handling equipment for installation and transport of hazardous closed chemical and nuclear APU Systems		$125,000	1960
	TOTAL	$125,000	

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1.

R & D MATERIEL ANNEX

☐ SYSTEM ☒ PROJECT ☐ TASK ☐ OTHER

2. REPORTS CONTROL SYMBOL

PAGE 5 OF 9 PAGES

3. DATE 1 November 1956

4. TITLE Subsystem J - ~~GROUND SUPPORT AND TRAINING~~
Contractor ground handling and Vehicular requirements at Alternate Launch Site (IOC)

5. INITIAL ☒ CHANGE

6. NUMBER WS 117L

7. MATERIEL REQUIREMENTS (Indicate Items in Columnar Form using Columns as cited in Examples)

Qty	Nomenclature	Cost	Year Req'd
	Ground Handling and Assembly Equipment	$600,000	1959-1960
1	Truck (1½ ton)	3,200	1959
4	Truck (½ ton) at $1,500	6,000	1959
1	Forklift (4000 # cap)	5,700	1959
	TOTAL	$614,900	

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1.

R & D MATERIEL ANNEX

☐ SYSTEM ☒ PROJECT ☐ TASK ☐ OTHER

2. REPORTS CONTROL SYMBOL

PAGE 6 OF 9 PAGES

3. DATE 1 November 1956

4. TITLE Subsystem J - GROUND SUPPORT AND TRAINING
Contractor equipment requirements for Alternate Launch Site (IOC) - Electrical & Electronics

5. INITIAL ☒ CHANGE

6. NUMBER WS 117L

7. MATERIEL REQUIREMENTS (Indicate Items in Columnar Form using Columns as cited in Examples)

Qty	Nomenclature	Cost	Year Req'd
1	Checkout Console	$100,000	1959
1	Mobile Ground Instrumentation Station	100,000	1959
	Ground Instrumentation Station Equipment	400,000	1958
	TOTAL	$600,000	

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1.

R & D MATERIEL ANNEX

☐ SYSTEM ☒ PROJECT ☐ TASK ☐ OTHER

2. REPORTS CONTROL SYMBOL

PAGE 7 OF 9 PAGES

3. DATE 1 November 1956

4. TITLE Subsystem J - GROUND SUPPORT AND TRAINING
In Plant Modification Center

5. INITIAL ☒
CHANGE

6. NUMBER WS 117L

7. MATERIEL REQUIREMENTS (Indicate Items in Columnar Form using Columns as cited in Examples)

ADDITIONAL MATERIAL REQUIRED:

	Cost	Year
Electronic equipment and special checkout equipment	$ 55,000	1957
Shop Facilities and Tools	25,000	1957
Handling Equipment	25,000	1957
Guidance Console	150,000	1957
TOTAL	$255,000	

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1.

R & D MATERIEL ANNEX

☐ SYSTEM ☒ PROJECT ☐ TASK ☐ OTHER

2. REPORTS CONTROL SYMBOL

PAGE 8 OF 9 PAGES

3. DATE 1 November 1956

4. TITLE Subsystem J - GROUND SUPPORT AND TRAINING
In Plant Environmental Test Facility

5. INITIAL ☒ CHANGE

6. NUMBER WS 117L

7. MATERIEL REQUIREMENTS (Indicate Items in Columnar Form using Columns as cited in Examples)

ADDITIONAL EQUIPMENT REQUIRED

	Cost	Year
Two week uninterrupted tests (heat, refrig., altitude, radiation, etc.)	$200,000	1957
Component Tests (Shock, accel., vibration, etc.)	100,000	1957
High Capacity Altitude Chamber (Rapid change in conditions)	150,000	1957
Structure Testing (Hot and cold, tensile, etc.)	100,000	1957
Tools and Supporting Equipment	20,000	1957
Material Tests (Chemistry, heat, fuels, etc.)	100,000	1957/1958
Materials (Yearly)	25,000	
Maintenance (Yearly)	25,000	
TOTAL	$720,000	

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1.

R & D MATERIEL ANNEX

☐ SYSTEM ☒ PROJECT ☐ TASK ☐ OTHER

2. REPORTS CONTROL SYMBOL

PAGE 9 OF 9 PAGES

3. DATE 1 November 1956

4. TITLE Subsystem J - GROUND SUPPORT AND TRAINING
Captive System Test Facility
Major Items

5. INITIAL ☒
CHANGE

6. NUMBER WS 117L

7. MATERIEL REQUIREMENTS (Indicate Items in Columnar Form using Columns as cited in Examples)

	Cost	Year
Vehicle & Propulsion Test		
Blockhouse, 4 cells, fire and water	$600,000	1957/1958
Equipment, furniture, safety, shop, etc.	250,000	1957/1958
Fuel support and safety $(CH_3)_2 N_2H_2$ and $HNO_3 - NO_2$ - disposal	450,000	1957/1958
Altitude Chamber (missile) environmental	650,000	1957/1958
Component and Hazard Test		
Building, fire cells, controls and water	200,000	1957/1958
Fuel Support (APU) and new development	50,000	1957/1958
Equipment, furniture, safety, shop, etc.	175,000	1957/1958
Altitude Chambers and pumps (APU) Life Test	250,000	1957/1958
Instrumentation and Data Facility		
Building, Office, Shop, furniture	275,000	1957
Instruments - 150 channels	650,000	1957/1958
Maintenance (Yearly)	185,000	
Special Orbit Environment Chamber	250,000	1957/1958

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SUBSYSTEM J - GROUND SUPPORT AND TRAINING

DATE 1 November 1956

This facility will be supported by all major subsystems:

LOCATION: Van Nuys and Sunnyvale, California

ITEM: MSD "In Plant" test facility

BUDGET CONTROL ESTIMATE: $10,000 *

USING AGENCY: Lockheed Missile Systems Division

NEED DATE: A portion of this facility currently exists, and will be needed immediately.

SCHEDULE:	1956						1957												1958												1959											
	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Additional area needed for expansion to house new test equipment. Approximately 8000 sq. ft.										10																																
Additional Equipment Component Test (Vibrators) Acceleration, Heat. etc.					1				7			9			10																											
ltitude and life ycle test equipment					1		7			9					10																											
gh capacity altitude hamber					1	2	3	4		7				8				9			10																					
ructure test equip.					1			9								10																										

DESCRIPTION AND UTILIZATION: The above test area is required to house those items which have been delineated i.e., component test equipment, altitude test equipment and altitude chamber.

* Cost of Van Nuys area modification for wiring, storage, preparation of floor and ceiling.

REMARKS: * Individual laboratories for testing currently exist at Van Nuys and Sunnyvale. Programming of tests will be such that none will be interrupted. Procurement of additional specialized equipment will continue and phased in delivery to proper location.

See following pages for additional information.

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[redacted]

Tab 6 cont'd

Subsystem J - Ground Support and Training

MSD "IN PLANT": ENVIRONMENTAL TESTING FACILITY

I. PURPOSE

"In Plant" test facilities will provide services to duplicate, if possible, "in-flight" conditions. Research, development and engineering reliability test used in the design and evaluation of breadboard models of subsystems, and subsystem materials will be conducted in various laboratories. Existing test equipment will be supplemented and expanded, and in addition, much specialized test equipment will be fabricated under the contract. This facility will be primarily contractor furnished and operated.

II. LOCATION

Current facilities exist at Lockheed Missile Systems Division, Van Nuys, California, with Sunnyvale, California, facilities under construction.

III. DESCRIPTION AND JUSTIFICATION

In order to ensure sufficient test equipment is available to meet the added requirements of testing for the APS, approximately 8000 square feet of laboratory and testing area will be needed to house personnel and equipment. This area will be part of the "In Plant" facility so that logistics problems of procuring components and material will be simplified. Equipment to be installed and employed in this testing area will consist in general of the following:

Tab 6 cont'd

Subsystem J - Ground Support and Training

Environmental test equipment for temperature, humidity, altitude, heat and radiation cycling.

Shock, acceleration, and vibration equipment for subsystem components.

Structural

Vacuum test equipment to handle small component and breadboard system for altitude and life cycle tests.

Structural and tensile test equipment for materials, hardware, rupture and shear testing.

An additional area of 6000 square feet will be needed at the "In Plant" facility to conduct test of components in the vicinity of dangerous auxiliary power system exhaust and raw fuels to be used in the APU. This area will be near the "In Plant" facility but physically isolated to protect personnel and property. Additional equipment will include:

Chemical analysis equipment

Fuel spray cells

Testing and working cells

Tab 6 cont'd

Subsystem J - Vehicle Ground Support

MSD "IN PLANT" MODIFICATION FACILITY

I. PURPOSE

"In plant" modification will provide services to make special modifications to a vehicle that has been fabricated as a result of component and total system testing. This will allow uninterrupted vehicle fabrication and assembly and will entail only small design changes that do not interfere with normal fabrication. This facility will be contractor furnished and operated.

II. LOCATION

A modification center currently exists at Lockheed Missile Systems Division, Van Nuys, California. This center is presently saturated with modification of vehicles on other Air Force programs. It is anticipated that early modification for the System Test vehicles will be conducted at Sunnyvale, California.

III. DESCRIPTION AND JUSTIFICATION

In order to ensure that minor design changes in fabrication, wiring, and mechanical systems are integrated into the vehicles prior to shipment to the test bases, a modification center is required in close proximity to the fabrication and environmental test area. This will avoid any interruption in fabrication schedules except in the cases of major design changes.

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[redacted]

Tab 6 cont'd

Subsystem J - Vehicle Ground Support

Supporting checkout and handling equipment for this center include:

Direct wire ground station
Shop equipment and tools
Guidance Console
Electronic checkout equipment
Handling equipment
Data Reduction

[redacted]

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SUBSYSTEM J - GROUND SUPPORT AND TRAINING
This facility will be supported by the following subsystems:
A. VEHICLE, B. PROPULSION, C. AUXILIARY POWER, D. GUIDANCE AND CONTROL, H. GROUND-SPACE COMMUNICATIONS

ITEM: MSD "In Plant" facility (Propulsion Propellants)

USING AGENCY: Lockheed Aircraft Corporation
Missile Systems Division

DATE 1 November 1956

LOCATION: Sunnyvale, California

BUDGET CONTROL ESTIMATE: $30,000 *

NEED DATE: This is to supplement existing facility and will be needed immediately.

SCHEDULE:

	1956						1957												1958												1959											
	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Additional building for investigation of effect of dangerous propellants upon components Approx. 6000 sq. ft.					8		9					10																														
Additional Equipment Material (chemistry, radiation, etc.)					1	2				9			10																													

DESCRIPTION AND UTILIZATION: This facility is required to house test equipment and to perform dangerous studies. The purpose is semi-isolation from large areas of personnel.

* Cost includes construction of building including wiring, plumbing, etc.

REMARKS: * This will supplement the programming of tests and developments undertaken by other laboratories. See following pages for additional information.

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[redacted]

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[redacted]

SUBSYSTEM J - GROUND SUPPORT AND TRAINING
This area and Facility will be supported by all subsystems

DATE 1 November 1956

ITEM: MSD "In Plant" Modification Facility

USING AGENCY: Lockheed Aircraft Corporation
Missile Systems Division

LOCATION: Sunnyvale, California

BUDGET CONTROL ESTIMATE: 50,000 *

NEED DATE: This area to supplement existing facility

SCHEDULE:	1956						1957												1958												1959											
	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Additional area or building for expansion to house new equipment and modification. Final preparation 10,000 sq. ft.							9	-	-	-	10																															
Ground Station						9	10																																			
Data Reduction							10																																			
Shop Equipment						9	-	-	-	10																																
Handling Equipment					1	2	3	7	-	-	10																															
Guidance Console								6	-	-	7	-	-	-	10																											
Checkout Equipment						2	-	-	-	7		9	-	-	-	-	-	10																								

DESCRIPTION AND UTILIZATION: This area and equipment is utilized for final system calibration, inspection, checkout (no hot firing) and development modifications before shipment preparation.

* Additional building to house vehicles and supplement operations.

REMARKS: The existing modification and assembly area will be expanded to service this project properly and provide additional security.

See following pages for additional information.

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[redacted]

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~~CONFIDENTIAL~~

[redacted]

SUBSYSTEM J - GROUND SUPPORT AND TRAINING

DATE 1 November 1956

ITEM: Captive System Test Facility

The facility will service all subsystems providing "in flight" tests while statically ground retained. The propulsion and auxiliary power subsystems will be tested at this facility

LOCATION: Probably near Santa Cruz, California

BUDGET CONTROL ESTIMATE: $4,600,000

USING AGENCY: Lockheed Aircraft Corporation
Missile Systems Division

NEED DATE: March 1958

SCHEDULE:

	1956						1957												1958												1959											
	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Vehicle and Propulsion Test																																										
Blockhouse & pads							5	6			7							9		10																						
Equipment							3		7									9		10																						
Fuel Support							3	7										9		10																						
Altitude & Environmental Chamber							1					3		5	6	7		9		10																						
Component and Hazard Test							1											9		10																						
Building							5	7									9			10																						
Equipment								3	7						9					10																						
Instrumentation and Data							1											9		10																						
Building							3		7											10																						
Instruments							5	8										9		10																						

~~CONFIDENTIAL~~

[redacted]

DESCRIPTION AND UTILIZATION: This facility will test complete vehicles under "in flight" conditions while ground retained. Hazard and propulsion tests will be performed under control conditions.

REMARKS: *This facility being a hazard and security unit will be given careful scheduling and design evaluation.

See following pages for additional information.

Revised Form 108

Tab 6 cont'd

Subsystem J - Vehicle Ground Support

CAPTIVE SYSTEM TEST FACILITY

I. Facilities are required for supporting tests of the complete vehicle system, the propulsion and APU subsystems, and hazardous components. The tests will be captive tests simulating in-flight and orbit environment conditions wherever possible. The facilities and equipment for this testing include considerations for a hazardous testing area in a separate isolated location because of the toxic nature of advanced engine propellants. The final location of the isolated testing area is undefined at this time. These facilities will be contractor operated.

II. DESCRIPTION AND JUSTIFICATION

This facility is to be divided into five sections: (1) vehicle and propulsion subsystem testing; (2) component testing including APU's, valves, gages and controls; (3) a central instrumentation data station; (4) nuclear testing; and (5), an administration (non-hazard) area.

Basic vehicle system, propulsion system, and complete environmental testing will be centered around a single control building. Provision for control booths, offices, shops and local fuel support control will be in this building. Four pads are planned in this area

Tab 6 cont'd

Subsystem J - Vehicle Ground Support

to be operated as desired. Two will be for vehicle testing and calibration; the third, for environmental tests; and the fourth, for system investigation.

The component and hazard area is to be devoted to testing materials, APU equipment in suitable altitude chambers, propulsion system components, and electronic system elements under radiation, orbital environment, and other conditions. The general arrangement is to be based upon a single control building housing control booths, cells, shops, and office area. The fuel support for the two areas will be designed to contain properly any fire and to suppress all toxic vapors and waste by flushing and filtration.

The central instrumentation and data facility will handle all information from the testing areas. Multiple "quick look", control data recorders, and tape recorders will be provided.

An isolated site to handle systems tests which employ such propellants as fluorine will be required at a latter date, if the advanced propulsion units using fluorine are injected into the program. This facility is delineated as an isolated Hazardous Test Facility.

[redacted]

SUBSYSTEM J - GROUND SUPPORT AND TRAINING
This facility supports Subsystem I - Data Processing and Intelligence Dissemination.

DATE 1 November 1956

ITEM: Advanced Reconnaissance System Intelligence Center (ARSIC)

USING AGENCY: Lockheed Aircraft Corporation
Missile Systems Division

LOCATION: To be determined

BUDGET CONTROL ESTIMATE: $6,150,000*

NEED DATE: 1959

SCHEDULE:	1956						1957												1958												1959											
	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
ARS Intelligence Center						1	2	3	4	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	-	-	-	-	-	10						
Photo. Training Facility												9	10																													
Electronic Training Facility						1		4					8					9		10																						
Infrared Training Facility						1	-	-	-	-	-	Steps to be defined at later date															-	-	-	-	-	-	-	-	-	10						
Equipment to be defined at later date						1	-	-	-	-	-	Steps to be defined at later date																-	-	9	-	-	-	-	-	10						

CONFIDENTIAL

[redacted]

DESCRIPTION AND UTILIZATION: The ARSIC will be the operations Center for conversion of all ARS visual, electronic and infrared data to evaluated intelligence for Command study, planning and action. The photo training facility will require space for orderly training of sequential groups to provide approximately 1800 photo interpreters, specialists and correlators. The electronic training facility will require space to make similar provisions for approximately 1200 data analyzers and interpreters.

REMARKS: *Estimate includes $90,000 for Electronic Training Facility and $60,000 for Photo Training Facility.

See following pages for additional information.

Revised Form 108

Tab 6 - cont'd

Subsystem J - Vehicle Ground Support

ADVANCED RECONNAISSANCE SYSTEM INTELLIGENCE CENTER (ARSIC)

I. PURPOSE

The primary purpose may be stated as a solution to the problem of data handling on such a large scale that machine and manpower demands may rapidly exceed realistic values. It is essential that means be found for minimizing redundancy, for speeding up interpretation of reconnaissance information, and for acquisition of trained intelligence personnel. Three primary functions need be provided within the structure of the ARS Intelligence Center (ARSIC): operation of a Visual Reconnaissance Processing Branch, an Electronic Processing Branch, and an Infrared Processing Branch. Another function, in preparation for actual operation of the Center, is an Intelligence operation training program. Without this training program it will be impossible to provide interpretation in sufficient quantity to man the Center and data stations.

It is planned that these facilities will be GFF. They will, however, be managed and operated by contractor personnel to provide a stable organizational structure with full exploitation of accumulated experience.

Tab 6 - cont'd

Subsystem J - Vehicle Ground Support

II. LOCATION

Location of the facility has not been suggested, pending operational analysis determination of the best sites. From the study of over-all intelligence requirements and the importance of the data that will be presented, however, it appears that such a facility should be installed at a site where coordination and liaison for both military and contractor is readily available. More important, it appears that the site should be easily accessible to top level military strategists. South Central U.S. locations are being considered.

Tab 6 - cont'd

Subsystem J - Vehicle Ground Support

III. DESCRIPTION AND JUSTIFICATION

The ARS Intelligence Center will consist of a plant complex with buildings or wings designed to the special requirements of three processing and interpretation Branches. Display rooms are provided near the processing Branches for viewing large-scale maps or hemispherical terrestrial reproduction by senior planners and commanders. The display area is planned to be readily accessible to subterranean car ports.

Equipment laboratories and shop and modification areas are to be provided in underground floors or separate wings.

The Intelligence Center will be supported by data relayed from the Vehicle Intercept, Control and Data Acquisition Stations. The preliminary processing equipment, although physically located at each Data Station, is an essential link in the Center's operation. While detail design of the relay methods have not been evolved, many existing methods will be critically examined to evolve the most expeditious. Processing at the Center (ARSIC) is accomplished by use of mechanical, photographic, optical and audio-visual equipment, with storage and recall capability by use of a Minicard System.

Tab 6 - cont'd

Subsystem J - Vehicle Ground Support

In addition to the processing interpretation and display, the development of the Center will provide intelligence operational training to produce qualified personnel to man ARSIC and Data Station functions. Equipment which is based on the design of actual operational units will be employed for training purposes in the pre-Center-activation period. Training programs concurrent with the development of processing equipment for the ARSIC will furnish operating personnel by the date of readiness of the ARSIC facility itself.

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[redacted]

SUBSYSTEM J - GROUND SUPPORT AND TRAINING
This facility will service all subsystems requiring Reconnaissance and Telemetry data.

DATE 1 November 1956

ITEM: Vehicle Intercept, Control and Data Acquisition Station

USING AGENCY: Lockheed MSD CBS Laboratories, Eastman Kodak Co. and other subcontractors

LOCATION: 4 complete stations
Northeast, Northwest, Pacific Area, South Central U.S.A.

BUDGET CONTROL ESTIMATE: $5,000,000*

NEED DATE:

SCHEDULE: 1956 (J A S O N D), 1957 (J F M A M J J A S O N D), 1958 (J F M A M J J A S O N D), 1959 (J F M A M J J A S O N D)

Station Building & Equip.	
West Coast	These (1) steps to be defined at a later date (9) ------------------ (10)
Pacific Area	These (1) steps to be defined at a later date --------- (9) ------------- (10)
East Coast	These (1) steps to be defined at a later date ------------ (9) ------- (10)
South Central	(1) These steps to be defined at a later date -------- (9) ------- (10)
Equipment as itemized for AFMTC in Sub-system H	(1) These steps to be defined at a later date ------------------- (10)

DESCRIPTION AND UTILIZATION:

REMARKS: *This cost is estimated for separate stations.

See following pages for additional information.

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[redacted]

Tab 6 - cont'd

Subsystem J - Ground Support and Training

VEHICLE INTERCEPT, CONTROL AND DATA ACQUISITION STATIONS

I. PURPOSE

In order to provide intercept and contact with the satellite vehicle as it traverses a particular orbit, stations must be activated in locations which provide maximum possible data transmission time. As a compromise between cost and data transmission, these stations must intercept, control, and collect as much useful data as will be significant. Studies to determine the most useful number of such stations have been conducted, and the results indicate that four stations are needed: three within the bounds of the continental limits and one in the vicinity of Hawaii.

II. LOCATION

Preferred location of the four stations as indicated by previous studies can be pointed out as the Eastern Continental Coast, the Western Continental Coast, the Hawaiian Islands, and South Central U.S.A.

Tab 6 - cont'd

Subsystem J - Ground Support and Training

III. DESCRIPTION AND JUSTIFICATION

The four stations are conceived as an optimum compromise of coverage, security, and logistical support. In addition, an initial station, will be located at AFMTC because of R & D support considerations. Although this is not an optimum location, it is required so that background will have been established in the operational problems by the time continuous orbits are attained.

Each of the stations will contain tracking equipment, orbit computer, command transmitter, recording system for reconnaissance data, and a telemeter-type receiving station.

Inter-station communication will involve land line facsimile and television networks, with similar techniques for reconnaissance data transmission to an ARS Central Intelligence Center.

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SUBSYSTEM J - GROUND SUPPORT AND TRAINING
This facility will service all subsystems requiring reconnaissance and telemetry data.

DATE 1 November 1956

LOCATION: AFMTC Florida

ITEM: Flight Test Launching Facility

BUDGET CONTROL ESTIMATE: GFE & $358,700

USING AGENCY: Lockheed Aircraft Corporation
Missile Systems Division

NEED DATE:
A. October 1958
B. June 1959
C& D. December 1957

SCHEDULE:

	1956						1957												1958												1959											
	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
BUILDINGS																																										
A. Occupancy Period						1	8									9			10																							
B. Occupancy Period						1				3	5	6	7		8																					9				10		
C. Occupancy Period						1												10																								
D. Occupancy Period						1												10																								
EQUIPMENT																																										
itemized for AFMTC Subsystem J - hicle intercept and ontrol Ground Station						1									9																	10										
b - 2																																										

CONFIDENTIAL

[redacted]

DESCRIPTION AND UTILIZATION:

A. One Half (1/2) of existing Missile Assy. Bldg. (Type #1 or Equiv.) including 5000 square feet hard top storage ramp. For Final Assy., minor modification and checkout of test vehicles.
B. Anticipated separate facility for handling of hazardous systems.
C. Launch Complex
D. One Half (1/2) Igloo in rocket storage area (for igniters and squibs). For storage of destruct packages, igniters and squibs.

REMARKS:

See following pages for additional information.

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Tab 6 - cont'd

Subsystem J - Ground Support and Training

AFMTC - CAPE CANAVERAL, FLORIDA

I. PURPOSE

The flight test schedule and purpose is discussed under Subsystem A.

II. LOCATION

AFMTC, Florida

III. DESCRIPTION AND JUSTIFICATION

Facility requirements include one-half (1/2) Missile Assembly Building for assembly, checkout and minor modification of vehicles. A receiving, assembly, and checkout facility for nuclear components, i.e., nuclear APU's. One (1) Launch Complex suitable for boosters assigned to this program. One-half (1/2) rocket storage Igloo for storage of igniters and squibs.

Launching support will require use of a WS 107A launch pad and blockhouse for independent checkout. Joint use of a WS 107A pad and blockhouse with Convair crews for mating with the booster and final checkout will also be required.

Special checkout equipment for major subsystems will be required for checkout and secondary modification. Ground handling equipment in general will be similar to that used on the X-17 program.

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SUBSYSTEM J - GROUND SUPPORT AND TRAINING
This facility will service all subsystems requiring reconnaissance and telemetry data.

DATE 1 November 1956

LOCATION: West Coast IOC

BUDGET CONTROL ESTIMATE: GFE

NEED DATE: May 1959

ITEM: Flight Test and Operational Vehicle Launching Facility

USING AGENCY: Lockheed Aircraft Corporation
Missile Systems Division

SCHEDULE:	1956						1957												1958												1959											
	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
A. Occupancy Period																	1	--	-	3	5	-	8	---	---	---	---	---	---	---	---	---	9	---	---	---	---	10				
B. Occupancy Period																	1	--	-	3	5	-	8	---	---	---	---	---	---	---	---	---	9	---	---	---	---	10				
C. Occupancy Period																	1	--	-	3	5	-	8	---	---	---	---	---	---	---	---	---	9	---	---	---	---	10				
Equipment same as for AFMTC itemized in Subsystem J - Vehicle Intercept and Control Ground Station						1	------	Steps to be defined later											---	---	---	---	---	---	---	---	---	---	---	---	---	---	9	---	---	---	10					

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[redacted]

DESCRIPTION AND UTILIZATION:

A. One (1) Assy. Bldg. (16,250 sq. ft) including 5000 sq. ft. hard top storage ramp. For Final Assy., minor modification and checkout of OPN vehicles.
B. Anticipated separate facility for handling of hazardous systems.
C. One (1) Igloo for destruct or igniter storage.

REMARKS: A. Until March 1963
B. Until March 1963
See following pages for additional information.

Revised Form 108

Tab 6 - cont'd

Subsystem J - Ground Support and Training

WEST COAST - IOC

I. PURPOSE

Launching of the advanced vehicles will require an Alternate Launching Site. A preferable site is, of course, one which avoids placing large populated areas in the dangerous launch envelope. In addition, it is desirable to consider a site at which one of the vehicle intercept, control, and data acquisition stations are expected to be effective. The facility which is expected to be GFF will be operated by contractor personnel.

II. LOCATION

The specific location of the Alternate Launching Site is undefined at present. The West Coast IOC Site, Camp Cooke, California, is receiving serious consideration.

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[redacted]

Tab 6 - cont'd

Subsystem J - Ground Support and Training

III. DESCRIPTION AND JUSTIFICATION

Basically, the Alternate Launching Site will be similar to AFMTC with the supporting features of Patrick Air Force Base incorporated.

To support the personnel required for vehicle assembly, checkout, launching, intercept, control and data assimilation, it is estimated that an additional 300 people will be required for program support.

This site should include two launching pads and blockhouse; data and telemetering building; assembly building; control equipment; electronic equipment; fuel and oxygen storage; generator plant; complete internal communication; outside communication; tracking support; range safety; housing; ground equipment; air conditioning of critical areas; air-strip logistics support; transportation; and special electronic, radar and nuclear equipment.

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[redacted]

Subsystem J - Ground Support & Training
Tab 7 - R & D Contract Funds
(in thousands of dollars)

	FY 57				FY 58			Quarters	FY 59				FY 60			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
LAC																
(1) Research & Development	43	107	142	210	278	310	336	362	392	382	358	403	294	304	369	364
(2) Fabrication	0	0	0	54	54	51	60	67	67	46	45	45	24	24	6	10
(3) Sub Contracts	17	60	73	100	100	100	100	100	100	100	100	100	100	100	100	100
TEST SITES																
(1) Sunnyvale & AFMTC	0	190	254	407	503	623	627	813	906	906	885	885	885	885	888	888
Sub Total	60	357	469	771	935	1084	1123	1342	1465	1434	1388	1433	1303	1313	1363	1362
Fee	6	36	47	77	94	108	112	134	147	143	139	143	130	131	136	136
TOTAL	66	393	516	848	1029	1192	1235	1476	1612	1577	1527	1576	1433	1444	1499	1498
Total Fiscal Year		975				4304				6192				5952		

Subsystem J - Ground Support & Training
Tab 7 - R & D Contract Funds (cont'd)

(in thousands of dollars)	FY 61				FY 62		Quarters		FY 63						
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	TOTALS
LAC															
(1) Research & Development	389	384	359	324	299	279	291	296	296	281	167				8,019
(2) Fabrication	10	10	10	0	0	0	0	0	0	0	0				593
(3) Sub Contracts	100	100	100	100	100	100	100	100	100	100	100				2,550
TEST SITES															
(1) Sunnyvale & AFMTC	843	843	782	782	782	782	778	641	504	412	0				17,694
Sub Total	1342	1337	1251	1216	1181	1161	1169	1037	900	793	267				28,856
Fee	134	134	125	122	118	116	117	104	90	79	27				2,885
TOTAL	1476	1471	1376	1338	1299	1277	1286	1141	990	872	294				31,741
Total Fiscal Year		5821				5200				3297					

[redacted]

Subsystem J - Ground Support and Training
Tab 8 - R & D Manpower Annex

WORK ITEM	Type of Manpower	Quarters															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
LAC																	
Research and Development	1-2-3*	8	21	27	40	53	59	66	71	77	75	72	81	59	61	74	73
LAC																	
Fabrication and Assembly	4	0	0	0	15	15	14	17	19	19	13	13	13	7	7	2	3
Sub Total		8	21	27	55	68	73	83	90	96	88	85	94	66	68	76	76
Test Bases																	
System Test Facilities		0	20	25	45	55	70	70	110	130	130	130	130	130	130	130	130
AFMTC and IOC sites		0	21	30	40	50	60	65	65	65	65	65	65	65	65	65	65
Sub Total		0	41	55	85	105	130	135	175	195	195	195	195	195	195	195	195
TOTAL																	

*Note: Includes Training planning Major activation of Training Plans to be supported by separate contract funds later in the program.

[redacted]

Subsystem J - Ground Support and Training
Tab 8 - R & D Manpower Annex (cont'd)

WORK ITEM / Type of Manpower	Quarters 17	18	19	20	21	22	23	24	25	26	27	28	29	30	** TOTALS
LAC															
Research and Development 1-2-3*	78	77	72	65	60	56	58	59	59	56	33				1,590
LAC															
Fabrication and Assembly 4	3	3	3	3	0	0	0	0	0	0	0				169
Sub Total	81	80	75	68	60	56	58	59	59	56	33				1,759
Test Bases															
System Test Facilities	120	120	110	110	110	110	110	90	70	50	0				2,435
AFMTC and IOC sites	65	65	65	65	65	65	60	50	40	40	0				1,431
Sub Total	185	185	175	175	175	175	170	140	110	90	0				3,866
TOTAL															

*Note: Includes Training planning Major activation of Training Plans to be supported by separate contract funds later in the program.

**Total in Man Quarters

[redacted]